

COMPLETE LISTING OF THE CLAIMS

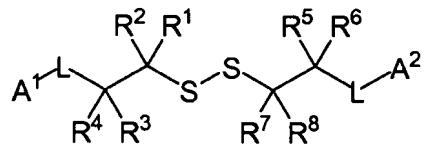
In the claims, please amend claims 7 and 19 as follows:

1-6. (canceled)

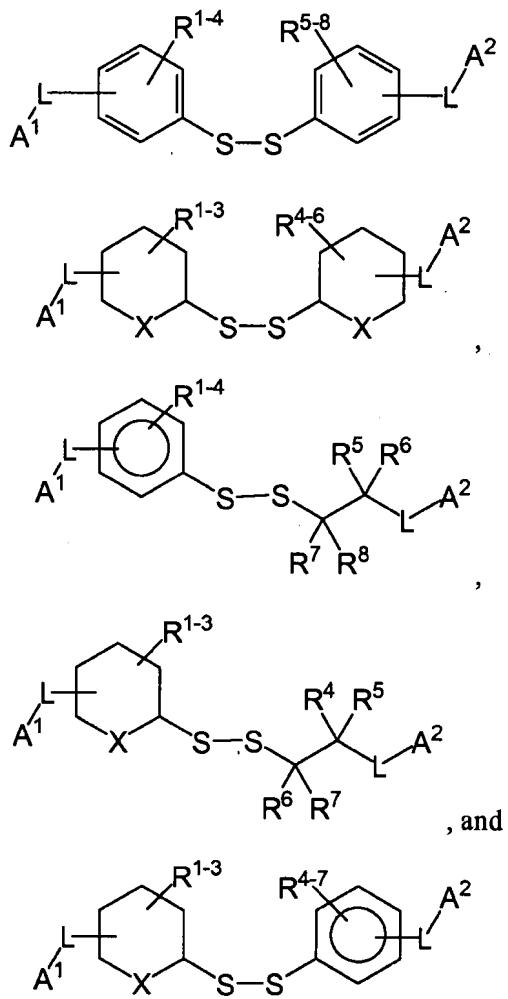
7. (currently amended) A disulfide bond-containing crosslinking agent comprising:

- a) a disulfide bond;
- b) at least one electron withdrawing group wherein proximity of said electron withdrawing group to said disulfide bond results in said disulfide bond being cleaved more rapidly than oxidized glutathione; and,
- c) two reactive groups independently selected from the group consisting of: isothiocyanate, isocyanate, acyl azide, acid halide, O-acyl urea, N-hydroxysuccinimide esters, succinimide esters, p-nitrophenyl ester, o-nitrophenyl ester, pentachlorophenyl ester, pentafluorophenyl ester, carbonyl imidazole, carbonyl pyridinium, carbonyl dimethyl aminopyridinium, amide, maleimide, urea, sulfonyl chloride, aldehyde, ketone, epoxide, carbonate, alkyl halide, ~~arylhalide~~, imidoester, and anhydride, wherein:
 - i) one reactive group is located on each side of said disulfide bond, but not between said electron withdrawing group and said disulfide bond;
 - ii) said reactive groups are capable of forming covalent bonds with separate compounds on each side of said disulfide bond;
 - iii) formation of said covalent bonds does not result in loss of said electron withdrawing group, cleavage of said disulfide bond, or said disulfide bond not being cleaved more rapidly than oxidized glutathione; and,
 - iv) subsequent cleavage of said disulfide bond results in the formation of two molecules.

8. (previously presented) The disulfide bond-containing crosslinking agent of claim 7 wherein disulfide bond-containing crosslinking agent consists of the structure selected from the group consisting of:



DO NOT ENTER



wherein R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , and R^8 are independently selected from the group consisting of: hydrogen, alkyl, alkenyl, alkynyl, aralkyl, aralkenyl, or aralkynyl, heteroatom (N, O, S), carbonyl group, and electron withdrawing group, at least one of R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , or R^8 consists of an electron withdrawing group, X consists of a heteroatom selected from the group including sulfur, oxygen, nitrogen, and phosphorus, L consists of a linker group that provides a connection between the disulfide bond and the reactive groups, and A^1 and A^2 are reactive groups.

9-11. (canceled)

12-18. (canceled)

19. (currently amended) A disulfide bond-containing crosslinking agent comprising:

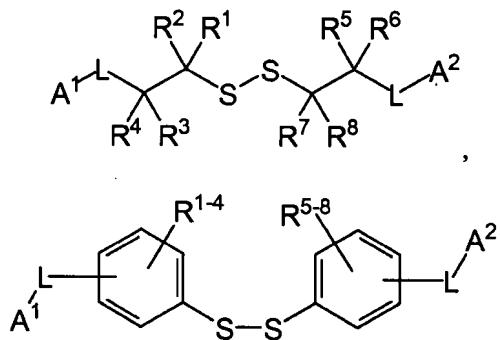
a) a disulfide bond;

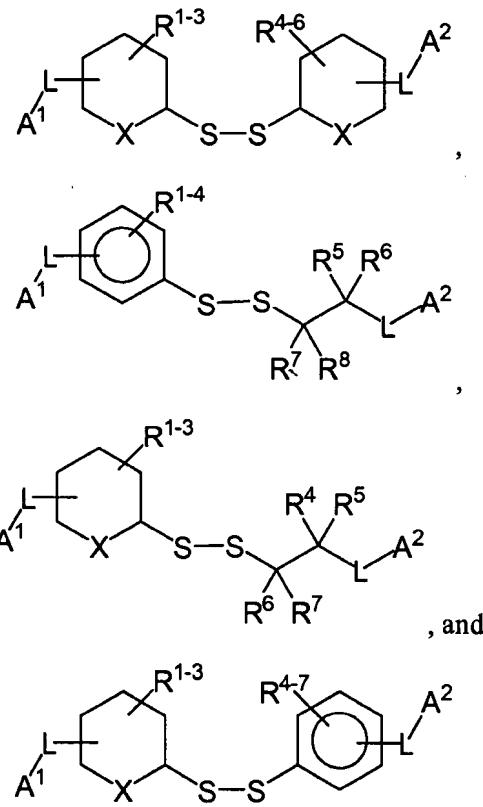
b) at least one electron withdrawing group wherein proximity of said electron withdrawing group to said disulfide bond reduces the pKa of at least one of the constituent thiols of said disulfide bond to less than glutathione thiol pKa; and,

c) two reactive groups independently selected from the group consisting of: isothiocyanate, isocyanate, acyl azide, acid halide, O-acyl urea, N-hydroxysuccinimide esters, succinimide esters, p-nitrophenyl ester, o-nitrophenyl ester, pentachlorophenyl ester, pentafluorophenyl ester, carbonyl imidazole, carbonyl pyridinium, carbonyl dimethyl aminopyridinium, amide, maleimide, urea, sulfonyl chloride, aldehyde, ketone, epoxide, carbonate, alkyl halide, ~~arylhalide~~, imidoester, and anhydride, wherein:

- one reactive group is located on each side of said disulfide bond, but not between said electron withdrawing group and said disulfide bond;
- said reactive groups are capable of forming covalent bonds with separate compounds on each side of said disulfide bond;
- formation of said covalent bonds does not result in loss of said electron withdrawing group, cleavage of said disulfide bond, or an increase in the pKa of at least one of the constituent thiols of the disulfide bond such that said pKa is not less than glutathione thiol pKa; and,
- subsequent cleavage of said disulfide bond results in the formation of two molecules.

20. (previously presented) The disulfide bond-containing crosslinking agent of claim 19 wherein disulfide bond-containing crosslinking agent consists of the structure selected from the group consisting of:





wherein R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , and R^8 are independently selected from the group consisting of: hydrogen, alkyl, alkenyl, alkynyl, aralkyl, aralkenyl, or aralkynyl, heteroatom (N, O, S), carbonyl group, and electron withdrawing group, at least one of R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , or R^8 consists of an electron withdrawing group, X consists of a heteroatom selected from the group including sulfur, oxygen, nitrogen, and phosphorus, L consists of a linker group that provides a connection between the disulfide bond and the reactive groups, and A^1 and A^2 are reactive groups.

21-23. (canceled)

24-28. (canceled)

CLAIMS READABLE OF ELECTED SPECIES

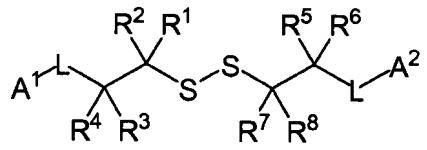
In the claims, please amend claims 7 and 19 as follows:

1-6. (canceled)

7. (currently amended) A disulfide bond-containing crosslinking agent comprising:

- a) a disulfide bond;
- b) at least one electron withdrawing group wherein proximity of said electron withdrawing group to said disulfide bond results in said disulfide bond being cleaved more rapidly than oxidized glutathione; and,
- c) two reactive groups independently selected from the group consisting of: isothiocyanate, isocyanate, acyl azide, acid halide, O-acyl urea, N-hydroxysuccinimide esters, succinimide esters, p-nitrophenyl ester, o-nitrophenyl ester, pentachlorophenyl ester, pentafluorophenyl ester, carbonyl imidazole, carbonyl pyridinium, carbonyl dimethyl aminopyridinium, amide, maleimide, urea, sulfonyl chloride, aldehyde, ketone, epoxide, carbonate, alkyl halide, ~~arylhalide~~, imidocester, and anhydride, wherein:
 - i) one reactive group is located on each side of said disulfide bond, but not between said electron withdrawing group and said disulfide bond;
 - ii) said reactive groups are capable of forming covalent bonds with separate compounds on each side of said disulfide bond;
 - iii) formation of said covalent bonds does not result in loss of said electron withdrawing group, cleavage of said disulfide bond, or said disulfide bond not being cleaved more rapidly than oxidized glutathione; and,
 - iv) subsequent cleavage of said disulfide bond results in the formation of two molecules.

8. (previously presented) The disulfide bond-containing crosslinking agent of claim 7 wherein disulfide bond-containing crosslinking agent consists of the structure selected from the group consisting of:



wherein R¹, R², R³, R⁴, R⁵, R⁶, R⁷, and R⁸ are independently selected from the group consisting of: hydrogen, alkyl, alkenyl, alkynyl, aralkyl, aralkenyl, or aralkynyl,

heteroatom (N, O, S), carbonyl group, and electron withdrawing group, at least one of R¹, R², R³, R⁴, R⁵, R⁶, R⁷, or R⁸ consists of an electron withdrawing group, X consists of a heteroatom selected from the group including sulfur, oxygen, nitrogen, and phosphorus, L consists of a linker group that provides a connection between the disulfide bond and the reactive groups, and A¹ and A² are reactive groups.

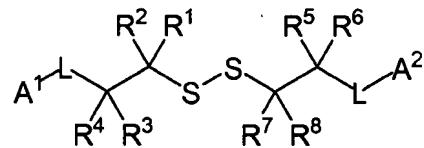
9-11. (canceled)

12-18. (canceled)

19. (currently amended) A disulfide bond-containing crosslinking agent comprising:

- a) a disulfide bond;
- b) at least one electron withdrawing group wherein proximity of said electron withdrawing group to said disulfide bond reduces the pKa of at least one of the constituent thiols of said disulfide bond to less than glutathione thiol pKa; and,
- c) two reactive groups independently selected from the group consisting of: isothiocyanate, isocyanate, acyl azide, acid halide, O-acyl urea, N-hydroxysuccinimide esters, succinimide esters, p-nitrophenyl ester, o-nitrophenyl ester, pentachlorophenyl ester, pentafluorophenyl ester, carbonyl imidazole, carbonyl pyridinium, carbonyl dimethyl aminopyridinium, amide, maleimide, urea, sulfonyl chloride, aldehyde, ketone, epoxide, carbonate, alkyl halide, ~~arylhalide~~, imidoester, and anhydride, wherein:
 - i) one reactive group is located on each side of said disulfide bond, but not between said electron withdrawing group and said disulfide bond;
 - ii) said reactive groups are capable of forming covalent bonds with separate compounds on each side of said disulfide bond;
 - iii) formation of said covalent bonds does not result in loss of said electron withdrawing group, cleavage of said disulfide bond, or an increase in the pKa of at least one of the constituent thiols of the disulfide bond such that said pKa is not less than glutathione thiol pKa; and,
 - iv) subsequent cleavage of said disulfide bond results in the formation of two molecules.

20. (previously presented) The disulfide bond-containing crosslinking agent of claim 19 wherein disulfide bond-containing crosslinking agent consists of the structure selected from the group consisting of:



wherein R¹, R², R³, R⁴, R⁵, R⁶, R⁷, and R⁸ are independently selected from the group consisting of: hydrogen, alkyl, alkenyl, alkynyl, aralkyl, aralkenyl, or aralkynyl, heteroatom (N, O, S), carbonyl group, and electron withdrawing group, at least one of R¹, R², R³, R⁴, R⁵, R⁶, R⁷, or R⁸ consists of an electron withdrawing group, X consists of a heteroatom selected from the group including sulfur, oxygen, nitrogen, and phosphorus, L consists of a linker group that provides a connection between the disulfide bond and the reactive groups, and A¹ and A² are reactive groups.

21-23. (canceled)

24-28. (canceled)